ABCD Model Analysis: A Critical Validation Management Tool for Business Excellence Models
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Abstract: -
This paper introduces a new management tool for validation of business models using ABCD Model Analysis which is a new developed validation technique. ABCD can be thought of “Achievement Because Continuous Development”. (Even though the ABCD stands for Analyse, Build, Check, and then Decide) the achievement here considered being the best decision that can be obtained to validate a business excellence model.

The approach used in this paper is a Structural Equation Modelling and AMOS for building and validating the business excellence models. The design of ABCD Model Analysis is based on a new method of direct and/or indirect path valuation that divides relationships paths into categories based on ABCD alphabetical coding, and provide a systematic, sequential manner and logical view based on ABCD rule of thumb that enable the analysing process to take place with ease and accuracy prior to and during the validation process.

The study shows that the ABCD Model Analysis is a very useful management tool for validation due to its systematic, simple, easy to remember, implement and to refine. In addition, the Path Analysis in the ABCD Model is a better version of the known Path Analysis techniques.

Key-Words: - Validation Process, ABCD Model Analysis, Business Excellence Model.
2 The ABCD Model Analysis

The ABCD model analysis consist of four basic ABCD stages which are positioned in the outer part of the model and there are two sub-stages in each (see figure 1). Therefore, there are eight sub-stages in total which are required to validate a business Excellence Model. Figure 2 displays the steps which should be followed in order to validate a business excellence model. The four main stages are as follows:

Analyse of the Business Excellence Model validation by identifying the purpose and approach to perform analysis with minimum time with high accuracy.

Build the business excellence model according to the purpose and approach.

Check the fitness of the business excellence model by a series of reliability tests and analysis to determine the validation of the measurement model and to determine the fit of purpose.

Decide the validity business excellence model for the theory, measurement and final interpretation and determine the correlation values, the regression and Model fitness tests and finally decide the fitness of the model and the fit of purpose.

The Use of the ABCD Model is to obtain a successful validation results by following a systematic approach with ease of remembering the steps, implementation and the refinement. Also, it overcomes some of the drawbacks and limitation mentioned by many of the researchers. The path analysis in ABCD Model allows direct estimation of the correlation between components with hypothesis analysis. It also allows multi dimension correlation analysis in the regression calculation i.e. data set for dependent variables and independent variables (correlation) or for regression coefficient (prediction) during the real case research analysis.

ABCD Model allows the option of direct study from the regression coefficient that avoids the common breakdowns such as collinearity and autocorrelation.

The conventional path analysis is “passively” depending on the calculated parameter that causes the common breakdown. The option is to “actively” control the regression from the coefficient of determination (or “R” value) and “disturbance of regression” (or residual term or regression) which are the most important parameters to collinearity and autocorrelation. ABCD Model analysis avoids the researchers or implementers from the “traps” of collinearity that every independent variable only consists of single correlation to the dependent variables.

The ABCD starts with defining the purpose of the validation and ends up at deciding the fitness of purpose. The validation is required to determine the criteria in which the measurement model is built on

<table>
<thead>
<tr>
<th>ABCD Validation Score</th>
<th>Step</th>
<th>Weight Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose (What, Why, When) &amp; Approach (How)</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>Exploratory Analysis</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>Degree of Well Enabled</td>
<td>3</td>
<td>5%</td>
</tr>
<tr>
<td>Synthesis Analysis</td>
<td>4</td>
<td>5%</td>
</tr>
<tr>
<td>ABCD Path Analysis</td>
<td>5</td>
<td>5%</td>
</tr>
<tr>
<td>Hypothesis Analysis</td>
<td>6</td>
<td>5%</td>
</tr>
<tr>
<td>Measurement Model Specification</td>
<td>7</td>
<td>5%</td>
</tr>
<tr>
<td>Hypothesis Development to questionnaire</td>
<td>8</td>
<td>5%</td>
</tr>
<tr>
<td>Instrument for data collection &amp; processing (SPSS)</td>
<td>9</td>
<td>5%</td>
</tr>
<tr>
<td>Modeling (AMOS)</td>
<td>10</td>
<td>5%</td>
</tr>
<tr>
<td>Reliability Test</td>
<td>11</td>
<td>5%</td>
</tr>
<tr>
<td>Measurement Model Identification (Degree of Freedom)</td>
<td>12</td>
<td>5%</td>
</tr>
<tr>
<td>Breakdown (VIF &amp; others)</td>
<td>13</td>
<td>5%</td>
</tr>
<tr>
<td>Regression Estimation</td>
<td>14</td>
<td>5%</td>
</tr>
<tr>
<td>Fitness Test</td>
<td>15</td>
<td>5%</td>
</tr>
<tr>
<td>Good Range of Model Fitness</td>
<td>16</td>
<td>5%</td>
</tr>
<tr>
<td>Model Modification and Refitting</td>
<td>17</td>
<td>5%</td>
</tr>
<tr>
<td>Interpretation of Valid Model</td>
<td>18</td>
<td>5%</td>
</tr>
<tr>
<td>Fitness for Purpose</td>
<td>19</td>
<td>5%</td>
</tr>
<tr>
<td>Total ABCD Score 100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1: ABCD Model Analysis
it and the analysis which can be respectively divided into several categories; For example, in business excellence models that contain similar components like European Foundation for Quality Management (EFQM), then a codification in alphabetical ABCD can be used to carry out bidirectional path analysis. The ABCD Model also contains Structure Equation Modelling (SEM), which takes place in several steps; it starts with the tuning of the model. The standardisation and modification operation are carried out to bring up the fitness of the model to a good range of performance.

Figure 2: Steps in ABCD Model Analysis
As can be seen in figure 3, which indicates the evaluation criteria for the category of the distinguished Government which is similar to EFQM.

The Business Excellence Model was an effective model worldwide, comply and in line with the international standards, results oriented, it has 83 sub-criteria, 179 area of enablers and 112 measures/indicators of results. The evaluation based on RADAR of results. The results are combination of performance outcomes such as trends, targets, comparisons, causes. ABCD Model analysis was developed to ease the analysis and testing the model as mentioned in figure 1 and figure 2.

2.1 Stage 1: Analyse
The first stage of validation process is to analyse the business model by identifying the purpose and the approach to perform analysis with minimum time with high accuracy.

2.1.1 Approach (How to validate?)
The approach may be varied from case to case. The general approach for the research purpose is suggested to start from theory model construction until the model is validated. The approach of this validation is to codify the business excellence model which is based on EFQM criteria into three ABCD and develop a three vertical models ABCD1, ABCD2 and ABCD3, also horizontal models are required to distinguish between the common enablers and the results.

2.1.2 Degree of Well Enabled
The Degree of well enabled will indicate not only how to validate but how good the validation is. The evaluation of the relationship among the criteria is summarised into three categories i.e. low enabled, marginal enabled and well enabled, as can be seen in tables 1, 2 and 3. Well enabled means the relationship are well established. Marginal enabled indicate the average relationship and low enabled represent the poor relationship among the criteria.

Table 1: Degree of Well Enabled Evaluation to ABCD1

<table>
<thead>
<tr>
<th>Category in EFQM</th>
<th>Leadership</th>
<th>Strategy</th>
<th>Partnership &amp; Resources</th>
<th>Process</th>
<th>People Result</th>
<th>Customer Result</th>
<th>Society Result</th>
<th>Degree of Well Enabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>People 3/1</td>
<td>Very Strong</td>
<td>Strong</td>
<td>N/A</td>
<td>Strong</td>
<td>Moderate</td>
<td>N/A</td>
<td>N/A</td>
<td>Well Enabled</td>
</tr>
<tr>
<td>People 3/2</td>
<td>Very Strong</td>
<td>Weak</td>
<td>N/A</td>
<td>Very Strong</td>
<td>Very Strong</td>
<td>N/A</td>
<td>N/A</td>
<td>Well Enabled</td>
</tr>
<tr>
<td>People 3/3</td>
<td>Very Strong</td>
<td>Moderate</td>
<td>N/A</td>
<td>Very Strong</td>
<td>Strong</td>
<td>N/A</td>
<td>N/A</td>
<td>Well Enabled</td>
</tr>
<tr>
<td>People 3/4</td>
<td>Very Strong</td>
<td>Strong</td>
<td>N/A</td>
<td>Strong</td>
<td>Very Strong</td>
<td>N/A</td>
<td>N/A</td>
<td>Well Enabled</td>
</tr>
<tr>
<td>People 3/5</td>
<td>Very Strong</td>
<td>Moderate</td>
<td>N/A</td>
<td>Very weak</td>
<td>Very Strong</td>
<td>N/A</td>
<td>N/A</td>
<td>Marginally Enabled</td>
</tr>
<tr>
<td>People 3/6</td>
<td>Weak</td>
<td>Weak</td>
<td>N/A</td>
<td>Weak</td>
<td>Very Strong</td>
<td>N/A</td>
<td>N/A</td>
<td>Marginally Enabled</td>
</tr>
</tbody>
</table>
In this stage three analysis methods (Exploratory, Synthesis, and Hypothesis) are deployed in which the selection of these analyses or other analysis should be critically reviewed based on the requirement of the model subject to validation.

2.1.3 Exploratory analysis
Exploratory analysis can be performed to expand the further possible investigation which should be close related to the researched topic. Exploratory analysis aims to find research patterns that aren’t predicted by the researcher’s current knowledge or pre-conceptions. Researcher thus collected the studied data and constructed the data into matrix table. An analysis is established to ensure the cause-effect relation in between the components for further research.

2.1.4 Synthesis Analysis
Synthesis analysis is discrete the studied model into few separate individual groups for the detail research on the particular characteristics.

2.1.5 Hypothesis Analysis
Hypothesis analysis is performed to confirm the outcome from the exploratory analysis by making various assumptions. A series of tests will be established based on these assumptions and the data from the testing will be analysed. To investigate any business excellence model such as EFQM, a model was constructed in AMOS. Figure 4 displays the EFQM theory model which can be viewed as it has three group, the first group called ABCD1 and consist of the leadership, people, process, people result and key result, second group ABCD2 has Leadership, strategy, process, customer result and key results, and the third group is Leadership, Partnership & Resources, process, society result and key results and called ABCD3.

"A" Category letter generally represent the Leadership which is considered to be the driver of the models that are similar to EFQM. As shown in table 4, the leadership represents 10% of weighted criteria, but represent approximately 69% of the inter link of all components. By paying attention close attention in tie-in up from driver to results and ensure that the chain of all excellent practice (sub-criteria) has a great positive influence.

"B" Category letter represent 30% of overall model and consists of three enablers in parallel, people, strategy and resources & partnership and about 69% of the inter link of related components. These three enablers can generally be managed through the
Leadership as a driver and a process as a system and a result as an outcome.

"C" Category letter describe the process and represent 10% of overall model and 35% of the interlink of the criteria and its sub criteria, that because most activities and approaches need process to implement.

“D” Category letter represents the results of the model and represents 50% of the overall model and around 55% of the inter link of the five enablers (leadership, People, Strategy, Partnership and resources and Process, service and product).

Figure 4: EFQM theory model is built to clearly map out the overview of study.

Table 4: ABCD Categorization of Components in a business model and Cause Effect Relation Matrix.

<table>
<thead>
<tr>
<th>ABCD Model for PATH ANALYSIS MATRIX (Direct and Indirect Cause-Effect Relation)</th>
<th>A1</th>
<th>B1</th>
<th>C1</th>
<th>D1</th>
<th>A2</th>
<th>B2</th>
<th>C2</th>
<th>D2</th>
<th>A3</th>
<th>B3</th>
<th>C3</th>
<th>D3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>B1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>C1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>D1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>A2</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>B2</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<td>No</td>
</tr>
<tr>
<td>C2</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>D2</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>A3</td>
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<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>B3</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
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<td>No</td>
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<table>
<thead>
<tr>
<th>No. of Interlinks</th>
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<th>6</th>
<th>4</th>
<th>6</th>
<th>11</th>
<th>11</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>6</th>
<th>4</th>
<th>6</th>
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<tbody>
<tr>
<td>% of Interlinks</td>
<td>45%</td>
<td>54%</td>
<td>36%</td>
<td>55%</td>
<td>100%</td>
<td>100%</td>
<td>45%</td>
<td>55%</td>
<td>63%</td>
<td>54%</td>
<td>36%</td>
<td>55%</td>
</tr>
<tr>
<td>Overall of Interlink%</td>
<td>A = 69%</td>
<td>B= 69%</td>
<td>C= 35%</td>
<td>D= 55%</td>
<td></td>
<td></td>
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</tbody>
</table>
2.2 Stage 2: Build
To validate a model, two models needs to be built, theory and measurement models. The behaviour of independence of individual groups will be considered into hypotheses analysis and also Break and Make is conducted as and when modification is necessary.

2.2.1 Hypothesis Development into questionnaire
The observed data then will be collected through survey questionnaire where are developed from hypothesis analysis. The expectation to collect feedback from the data provider should be estimated. Certain information may be sensitive to the data provider or the reaction from data provider may not suitable to the study. Alternate channel for the data collection should be ready and the data filtering may be needed.

2.2.2 Instrument for data collection & processing (SPSS)
SPSS software is utilised to process the collected survey data into a set of database which will be used to check reliability value of data and then integrate them in the AMOS modelling.

2.2.3 Modelling- AMOS
Measurement Model can be constructed using one of the families of statistical procedures that includes techniques such as path analysis. One available software for this purpose is the Structural equation modelling (SEM) software; it allows to evaluate hypotheses by testing whether a theoretical model of what tests suppose to measure is consistent with the observed covariance (Kline, 2005; Cole and Maxwell 2003).

2.3 Stage 3: Check
The check covers all the tests required to validate and verify the model fitness. It has two parts; the first part starts with the Reliability tests, and model identification, and the second parts finalise the model fitness tests.

2.3.1 Reliability test
Alpha Cronbach Reliability Test normally conducted to evaluate the reliability of a set of measurement data such as questionnaire, survey. Nunnally (1978) indicated that in the reliability result should be more at least 0.7 to accept it for the further estimation and calculation. In SPSS software, that is a feature to improve the reliability value by estimate “deletion for improvement” between the data but this is not the perfect solution. The worst case for the not acceptable value is to redo the data collection. The decision to precede the using collected data in further analysis. The reliability value must reach at least 0.7 or else the data will not be accepted.

2.3.2 Check Model Identification (Degree of freedom)
Before test the relationship among model components/variables, the model must be over-identified i.e. the degree of freedom are positive or the numbers of known parameter is more than unknown. That is only over-identified model able to be evaluated in the modeling. If the model is found just identified or under-identified, necessary fixing action should be done such as adding the variables to the model.

2.3.3 Breakdown Detection
Breakdown test is required to detect the existing common limitations in the model. Breakdown including collinearity, misspecification and autocorrelation will be minimized in this step. Collinearity or Multicollinearity (Carriquiry, 2004; Rajdeep, 2004; Vijay, 2000; Fernandez, (1997) is always exists between variables. It is defined as two or more independent variables that highly correlated to each other thus given an inaccurate regression to the respective depend variable. The researcher may face the difficulty in interpretation of the model because of this inaccurate regression.

The detection can be done by using variance inflation factor (VIF) calculation (Belsley et al., 1980; Greene, 1993) i.e.

\[
VIF = \frac{1}{1-R^2}
\]  

(1)

Where R2 is the coefficient of determination. The indicative value of problematic collinearity is 10 or more which need corrective action against it. Corrective action such as removing redundant independent variables and aggregating similar independent variables will effectively solve the collinearity.

Autocorrelation is a frequent breakdown in time series analysis when the residual term to a variables present is showing significant coefficient. The appearance of autocorrelation will cause the estimated of standard errors coefficient biased and larger thus the expected result from the studied model will not be achieved.
2.3.4 Regression Estimation

Regression estimation is performed to evaluate the relationship between the studied variables. The relationship is commonly described as direct effect, indirect effect and total effect relationship. It can be used with multi-dimensional ways in ABCD Model Analysis. In conventional, it is only conducted by plotting the dataset of dependent variables and independent variables to find the coefficient of an equation. Those variables are representing the causes and effects in quantifying value which can be obtained during data collection. Alternatively, causes and effects can be estimated or predicted if we know the regression coefficient. Therefore directly collect the direct relationship between those variables which we are using it for the theory model construction in the case study of this paper. A series of path analysis equations are then formulated to calculate the indirect and total effects of the relationship between those variables. A numbers of popular statistic software is used to compute the correlation such as AMOS.

This is the result determination step of the correlation analysis which the regression and correlation between the variables are calculated. All values are meaning full to the model. Anyway the result may be influenced by breakdown. Therefore breakdown analysis should go through to minimize the influence.

For the model estimation, the equation (Greene, 2007) should be defined from two ways which mentioned in the step of Correlation Analysis. We define the targets as dependent variables, $y_i$ and the n numbers of predicting factors which are observable as independent variables, $x_{ni}$. How the $x_{ni}$ to affect the $y_i$ which much rely on the certain unknown coefficient, $\beta_n$ or correlation values/regression is our concern in this section. The common structural equation to describe as follow (Vijay, 2000; Kline, 2005; Greene, 2007):

$$y_i = \beta_0 + \beta_1x_{i1} + \beta_2x_{i2} + \ldots + \beta_nx_{in} + \epsilon_i.$$  \hspace{1cm} (2)

where $\beta_0$ is intercept and $\epsilon_i$ is the disturbance that is not correlated to the regression.

In Normal equation, it is written as

$$Y = b_0 + b_1X_1 + b_2X_2 + \ldots + b_nX_n.$$  \hspace{1cm} (3)

Note: The Roman letters (the b’s) are estimates of the corresponding Greek letters (the $\beta$’s)

Meanwhile it also can be intrepreted as Total effect, $Y = \text{sum of direct effect, } b_0 \text{ and indirect effect of } b_nX_n$.

2.3.5 Model Fitness

The ability to test measurement model across multiple groups also provide a way to evaluate measurement invariance or construct bias, which means the test, measures the same constructs with the same accuracy in different samples. Computer programs are essential tools for conducting analysis and other type of SEM.

AMOS is one of the popular software programs (Analysis of Moment Structures) (Arbuckle, 1997; Kline, 2005). Structural Equation Model (SEM) emerged in the mid 1980’s. There are common type of SEM such as Path Analysis (Barbara, 2001), Confirmatory Factor Analysis (CFA) (Schereiber, 2006), Exploratory Factor Analysis (EFA) (Ullman, 2001) and Structural Regression Model. The path analysis, which also known as causal modelling, focuses on examining the network of relationships among the observed variables.

Fitness measure is designed to evaluate how the model fits the data in dataset. In most of the research literatures, 5 or more than 5 fitness criteria are measured. The popular fitness criteria are Ratio between $X^2$ and degree of freedom, Adjunct fit indices (AFI), Goodness-Of-Fit (GFI), Root Mean Square Error of Approximation (RMSEA), Root Mean Square Residual (RMR), Adjusted Goodness-Of-Fit (AGFI), Bentler-Bonett Non-Normed Fit Index (NNFI), Comparative Fit Index (CFI) and etc.

2.4 Stage 4: Decide

The last stage of validation is when analysis is completed, building the model is successfully achieved and all the necessary checks carried out to verify the model fitness, the last stage is to decide the fitness for purpose by a clear set of criteria. During the decision it is understood that any changes and modification can take place to bring the results up to the satisfactory levels of validation.

2.4.1 Decide Model Validation

It is important to verify and determine the correlation values, the regression and Model fitness tests. This step is mainly focus on decision making
process for every test and the final decision of model validation.

2.4.2 Decide Model Fit Criteria
At least 5 fitness criteria to be met in the test or else the model should be modified with theory justification.

2.4.3 Model Modification and Refitting
This is required when the model fitness is not satisfied. Hypotheses or the model structure can be adjusted and the model to be retested. Mostly the solutions such as re-specify the fixed and free parameters, adding paths or covariance. The modification should meet with the theory interpretation or else the modification is not recommended. Every single parameter or path modification require single test on it until the fitness achieved. Trim the unwanted variables or insignificant variables or to adding a possible connection to variables may contribute significant relationship.

2.4.4 Interpretation of valid model
It is the last step for the modelling. All valid models should be interpreted. It must be carried out for both theory model and valid measurement model, the comparison for both maybe different due to the realistic factors.

2.4.5 Fitness for Purpose
The conclusion to announce the validity of the model when the model is tested with reliable data, good model fitness and able to be interpreted.

3. Conclusion and contribution to knowledge
A practical ABCD Model analysis was developed as a management tool to enable researchers and practitioners to validate step by step and study a business excellence model with a systematic approach. The ABCD Model Analysis also verify the interlinks between the components and their practices that enable the business model to achieve their results. These enablers in the model, ABCD Model Analysis is a new method for successful validation process that ensures simplicity, systematic, scientific step by step eliminating all the drawbacks and limitations of different techniques. Also the ABCD Model Analysis is innovative integrated framework that contains various best practice techniques and methods for different steps of validation process. When designing the conceptual model that can be either a new business excellence model or an existing one.

The ABCD Model Analysis is simple, direct, focus, accurate, logical, informative, and practical. It also comply with the best practice of the most of the validation techniques and overcomes the drawbacks and limitations associated with the current validation methods. The ABCD Model is not only Validation tool and it is not only tells you how to validate but tells you how good your validation is through the ABCD validation score.

4. Limitation and future work
This paper introduces the ABCD Model Analysis for the first time and therefore it may require improvements and modification based on the feedback of the ABCD validation practitioner. The ABCD Model Analysis focused only on the Business Excellence Models, it can be expanded to cover the other models such as Business Process Models and Decision Making Models that may be required for validation. The ABCD Model Analysis can be further developed in a form of software that can operate and provide validation through seamless of information and data shared in a common platform or apply online and obtain results within minimum time required.

References:


